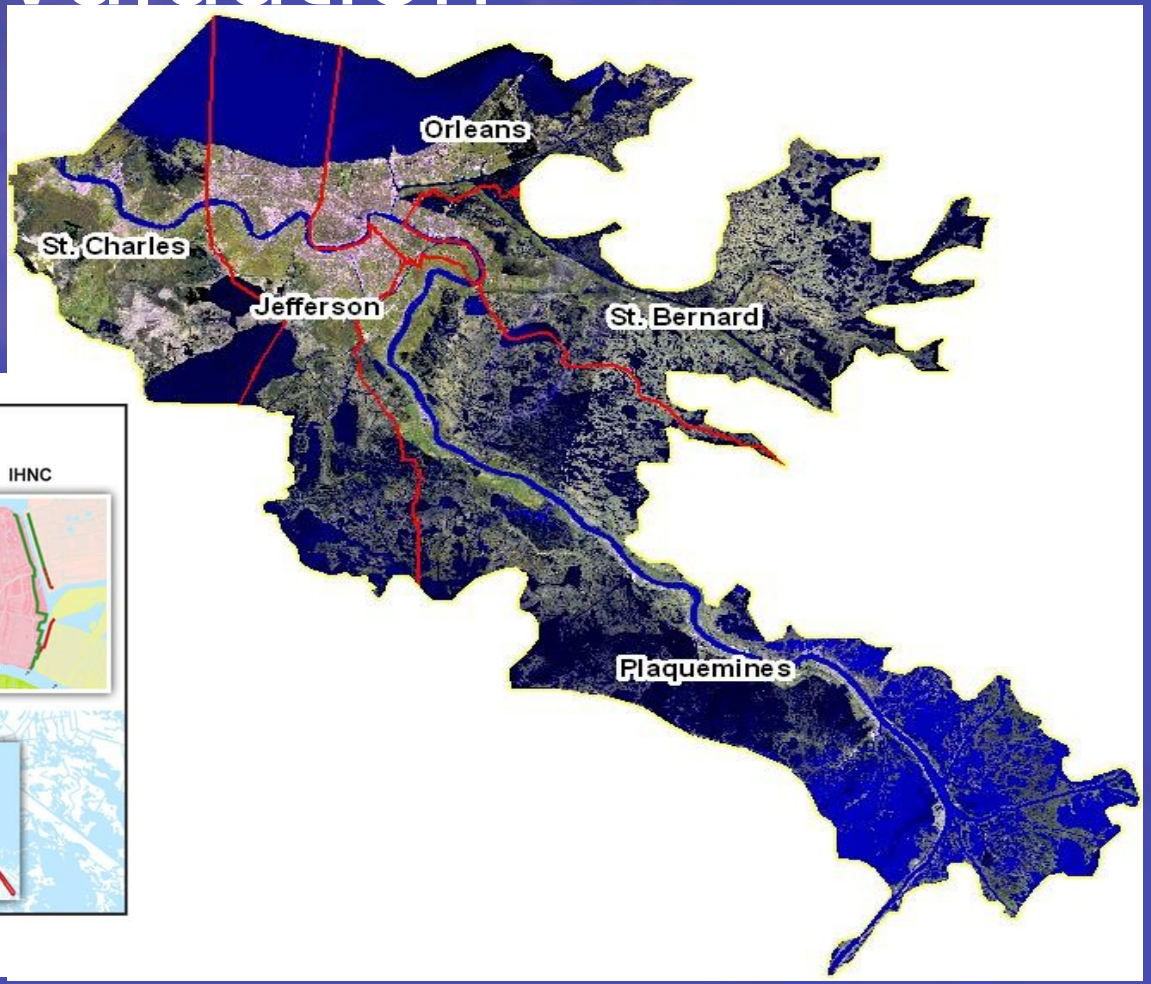
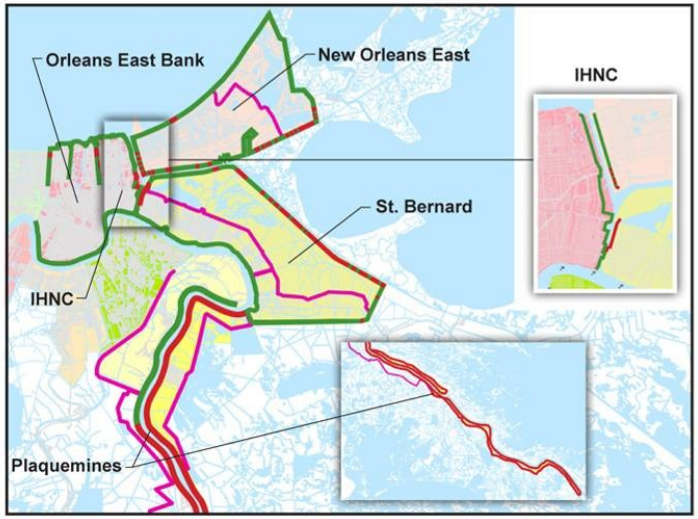
Use of GIS in the Interagency Performance Evaluation

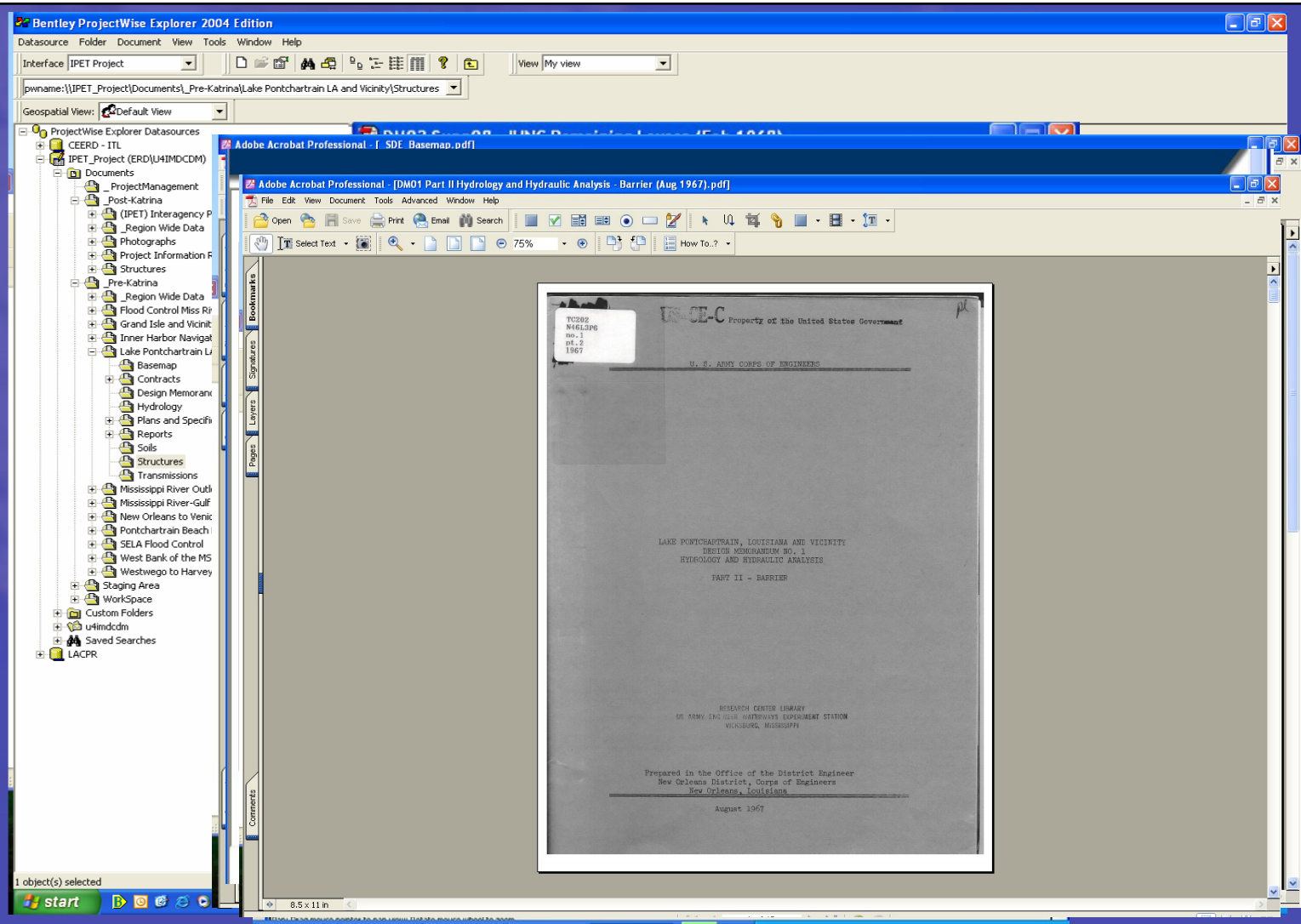




IPET Data Repository

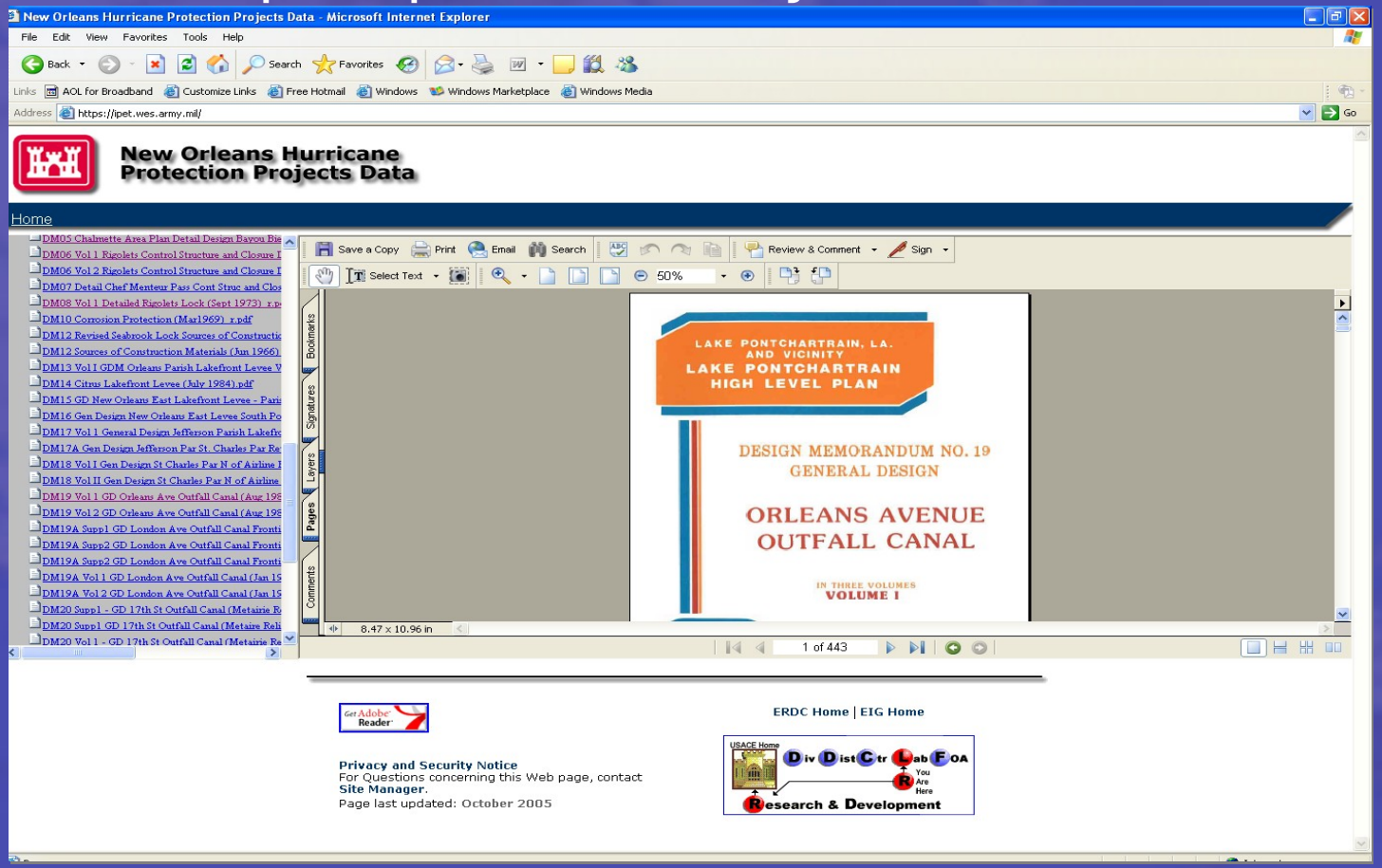
- https://erdcpw.erdc.usace.army.mil
  - 3 primary components:
    - GIS data – leverages the CorpsMap corporate database at USACE CPC
    - Unstructured data – Microsoft SQL Server database managed by Bentley ProjectWise
    - Large data sets – terabyte server connected to Oracle SDO database
  - Bentley ProjectWise – provides the overall metadata management for all 3 data components

IPET Data Repository



IPET Public Website

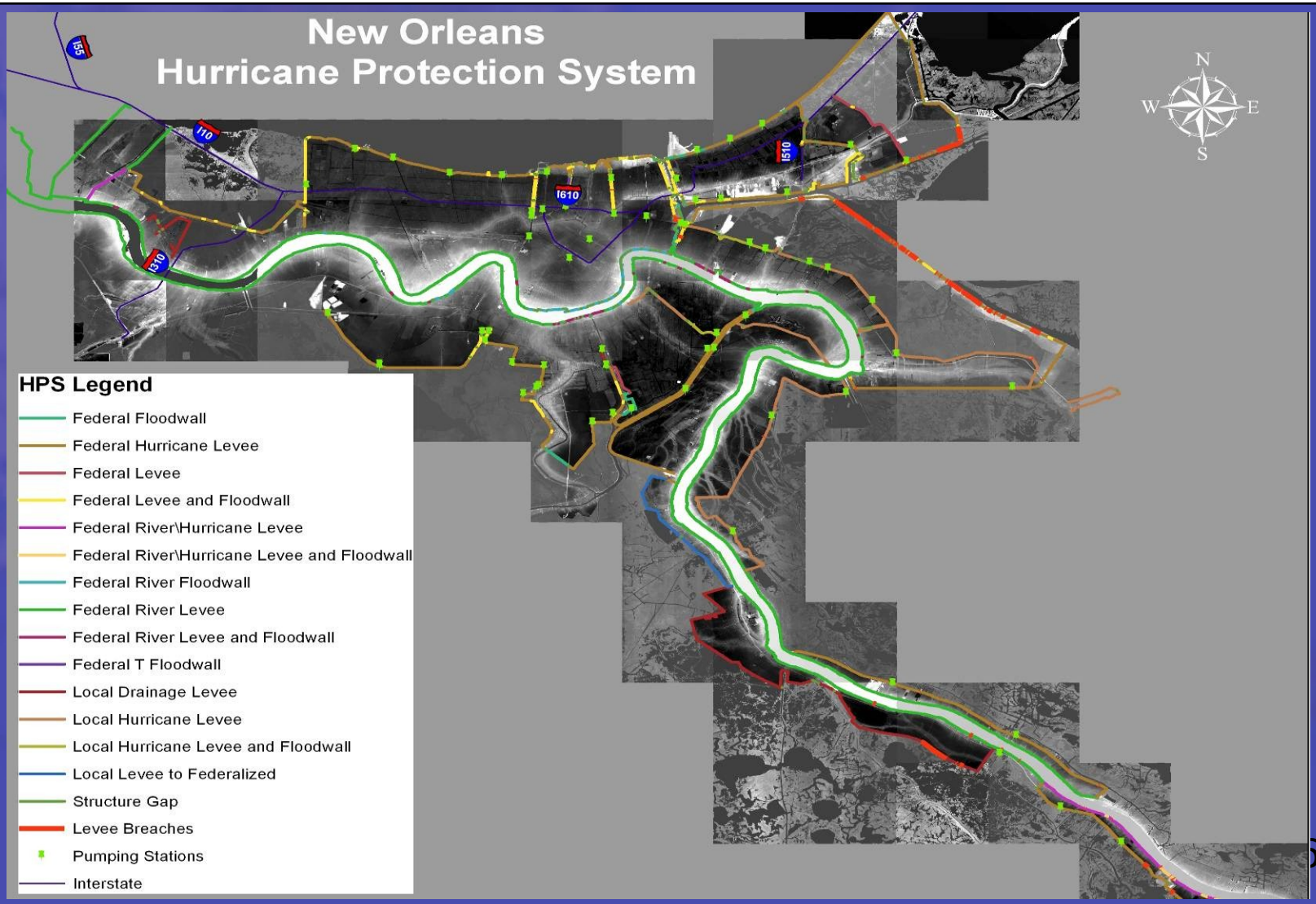
https://ipet.wes.army.mil



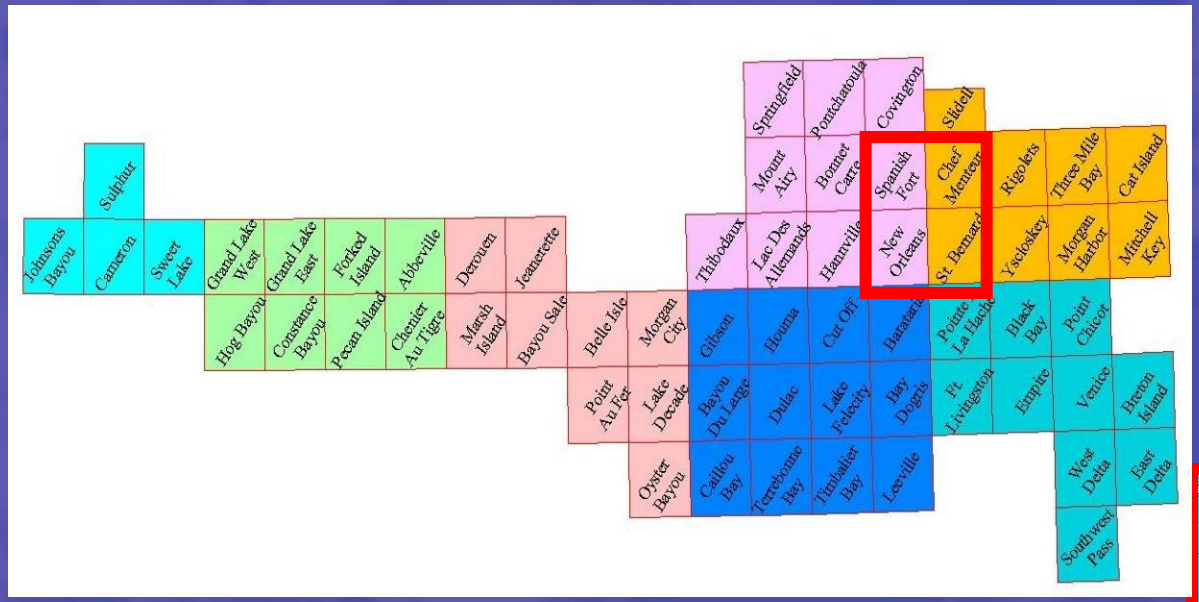
Examples of GIS use

- Overall Hurricane Protection System
- Risk and Reliability
- Storm and Surge Modeling
- Interior drainage/flooding
- Levee Erosion
- Consequences – economic losses, environmental
- Portal for Viewing/Downloading datasets

Hurricane Protection System



Geologic Mapping

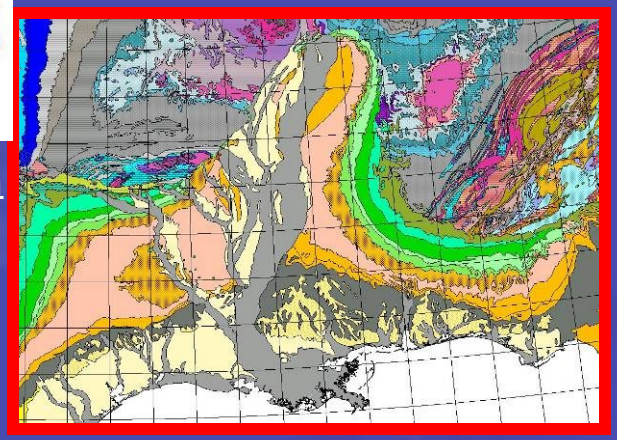


- 35-yr mapping program
- Based on drainage basin
- Over 300 15-min maps

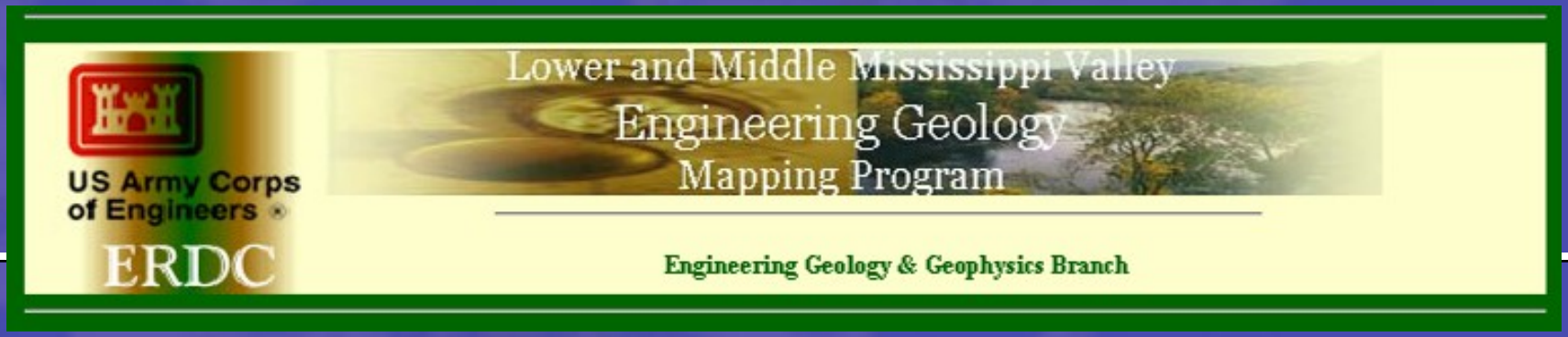
Mississippi River Deltaic Plain

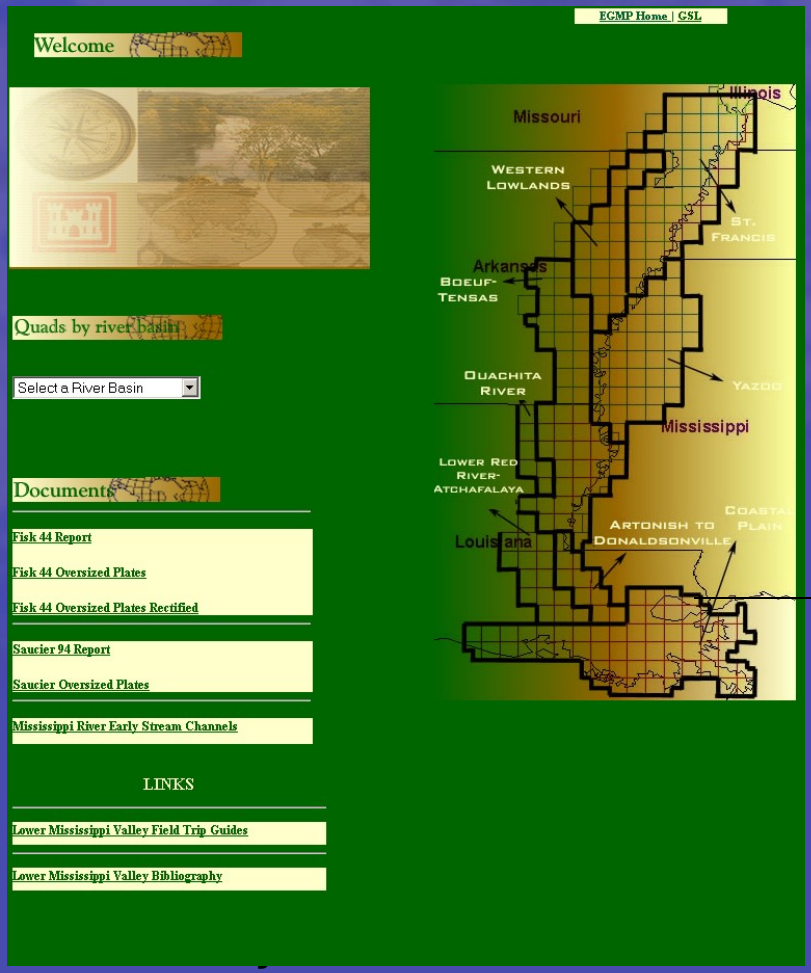
Miss R. Delta Plain East

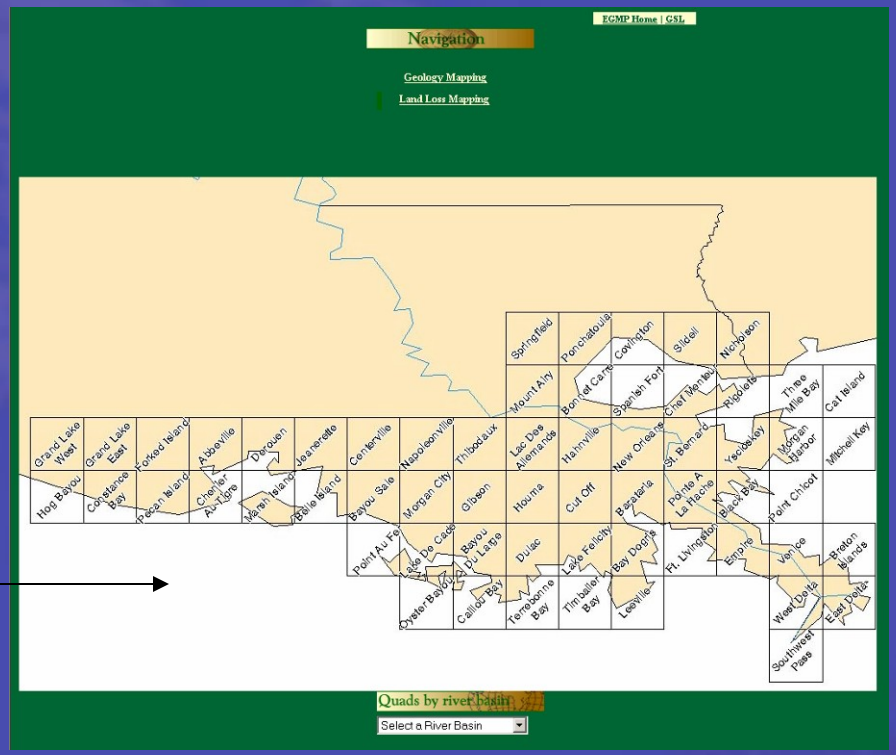
Miss R. Delta Plain West



- ERDC-GSL Engineering Geology Branch

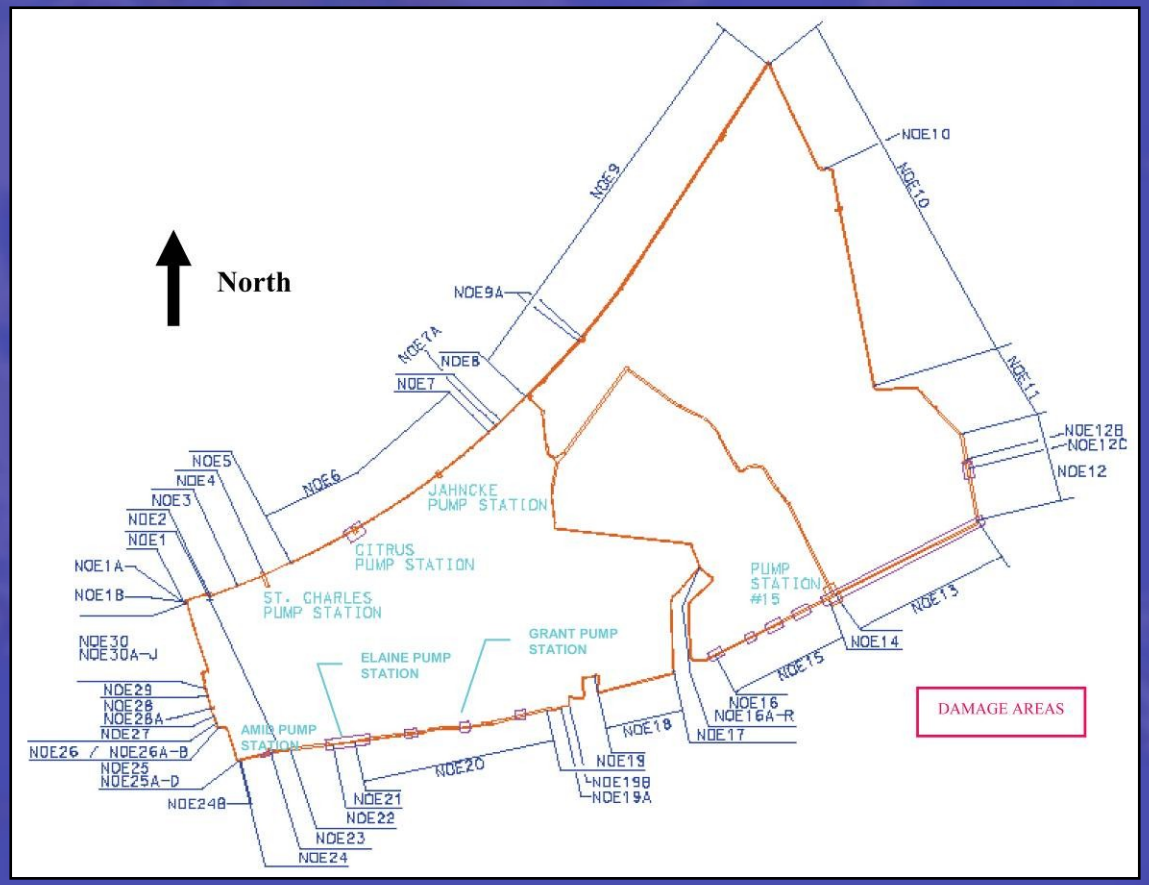




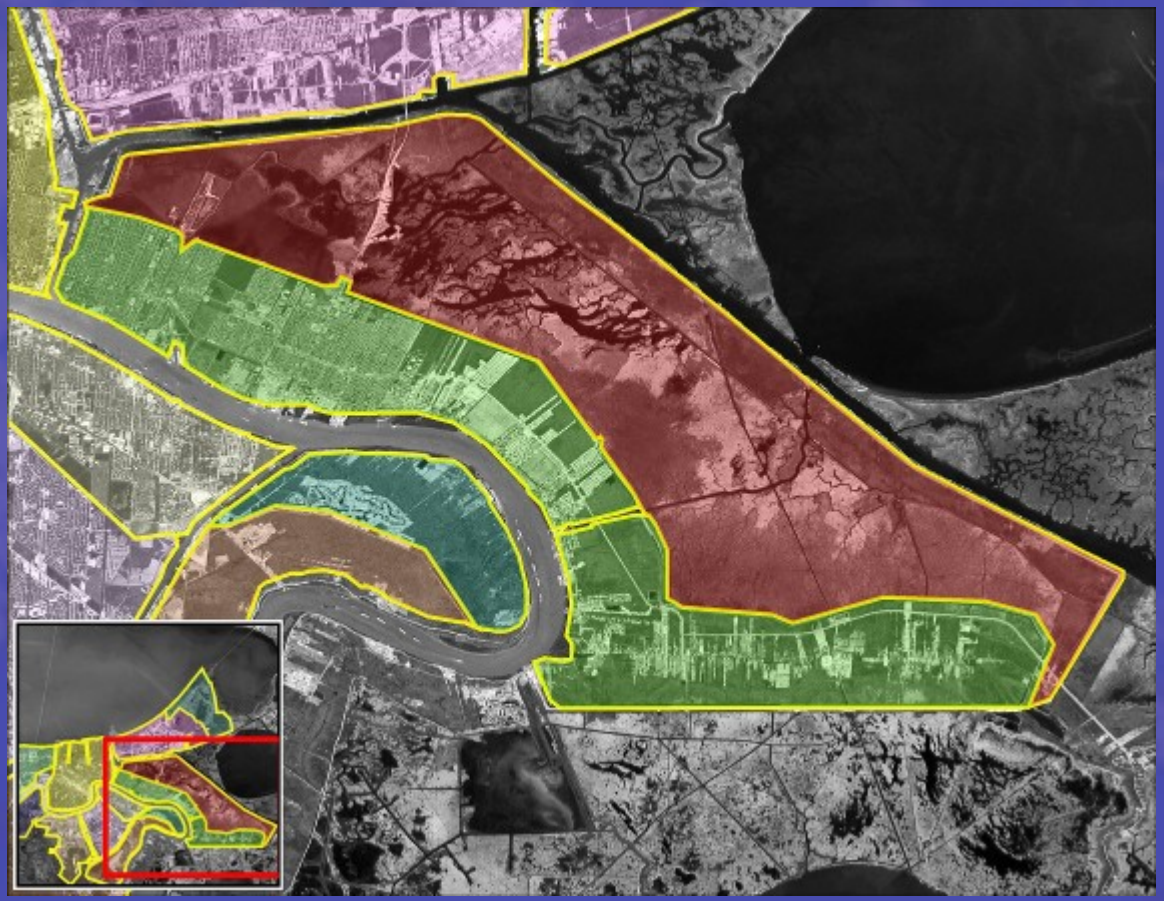


lmvmapping.erdc.usace.army.mil

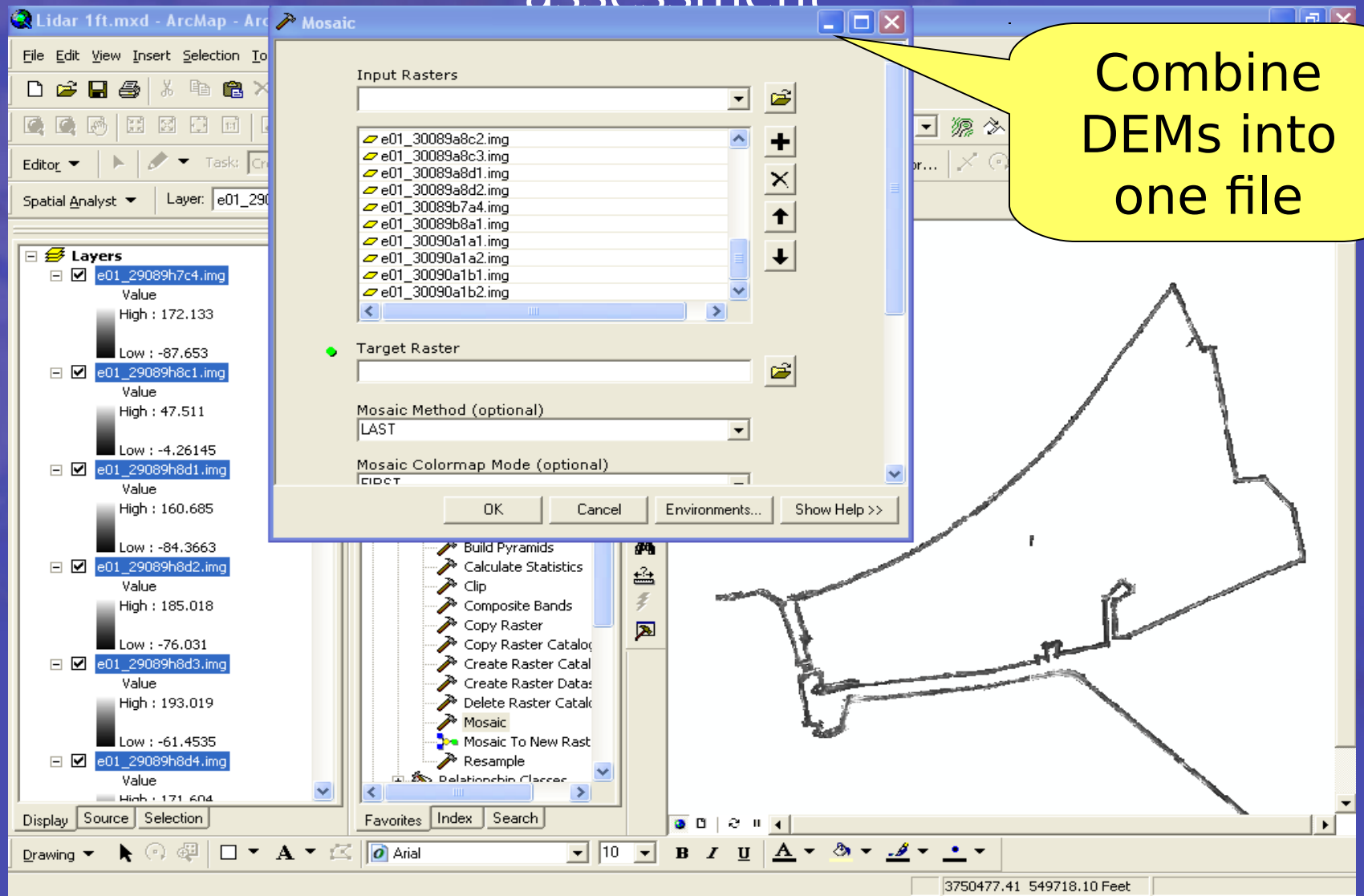
New Orleans East Basin – Reaches defined for Risk Assessment



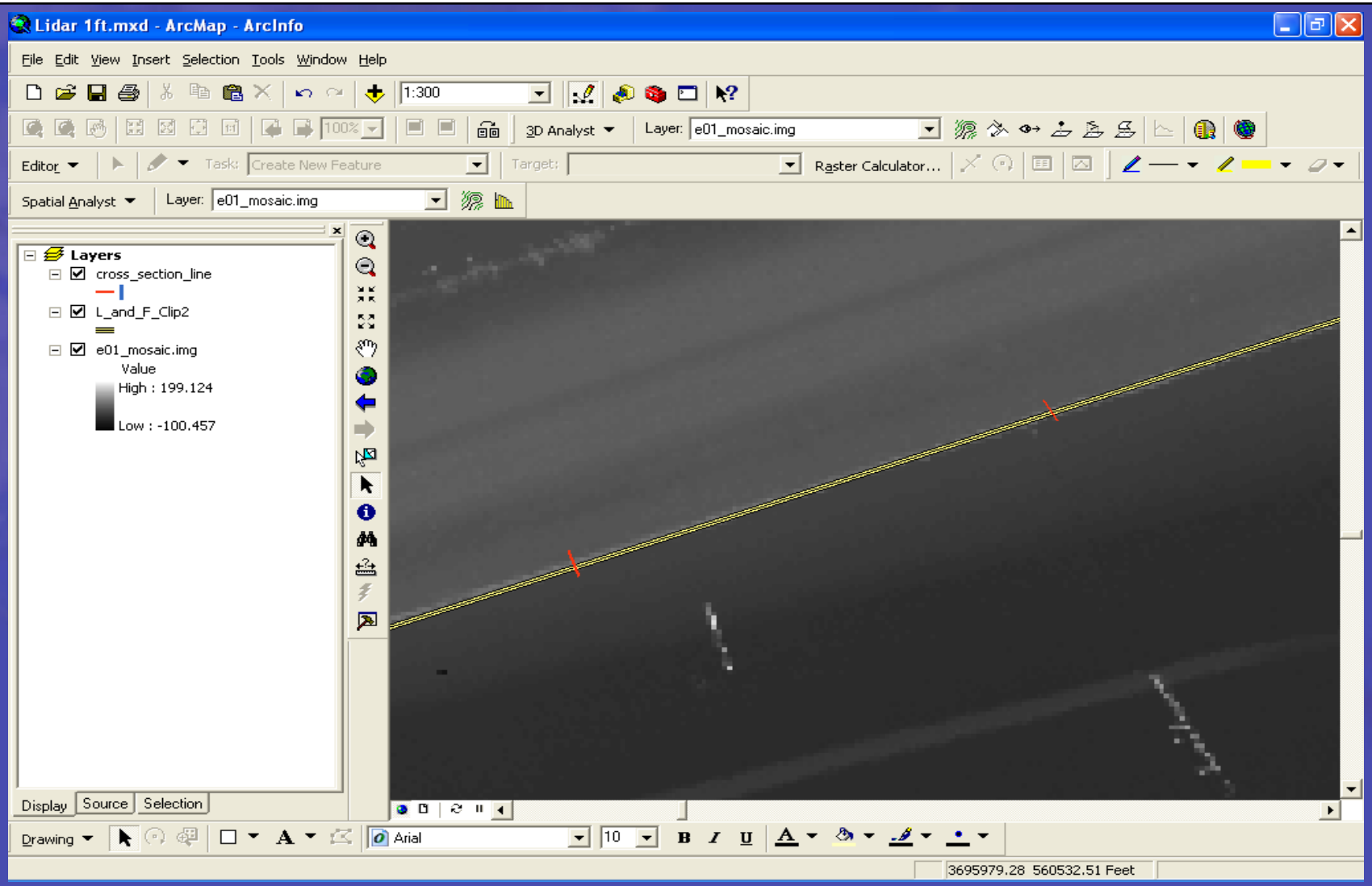
St. Bernard Basin layout of reaches for Risk Model by Physical Feature



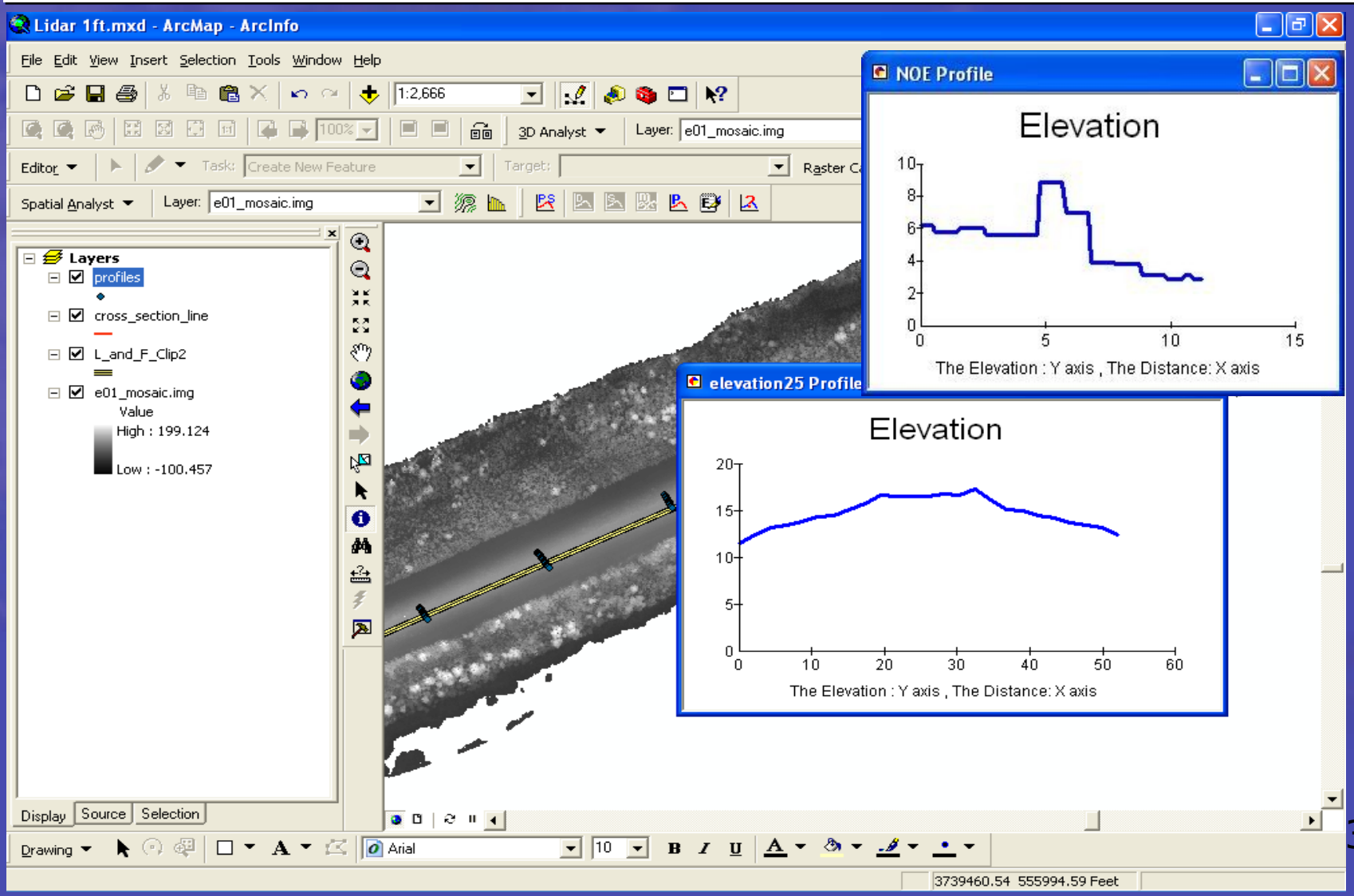
Used ArcGIS to extract top of levee/floodwall elevations for the entire New Orleans area levee system from pre-Katrina DEMs for use in surge modeling and risk assessment



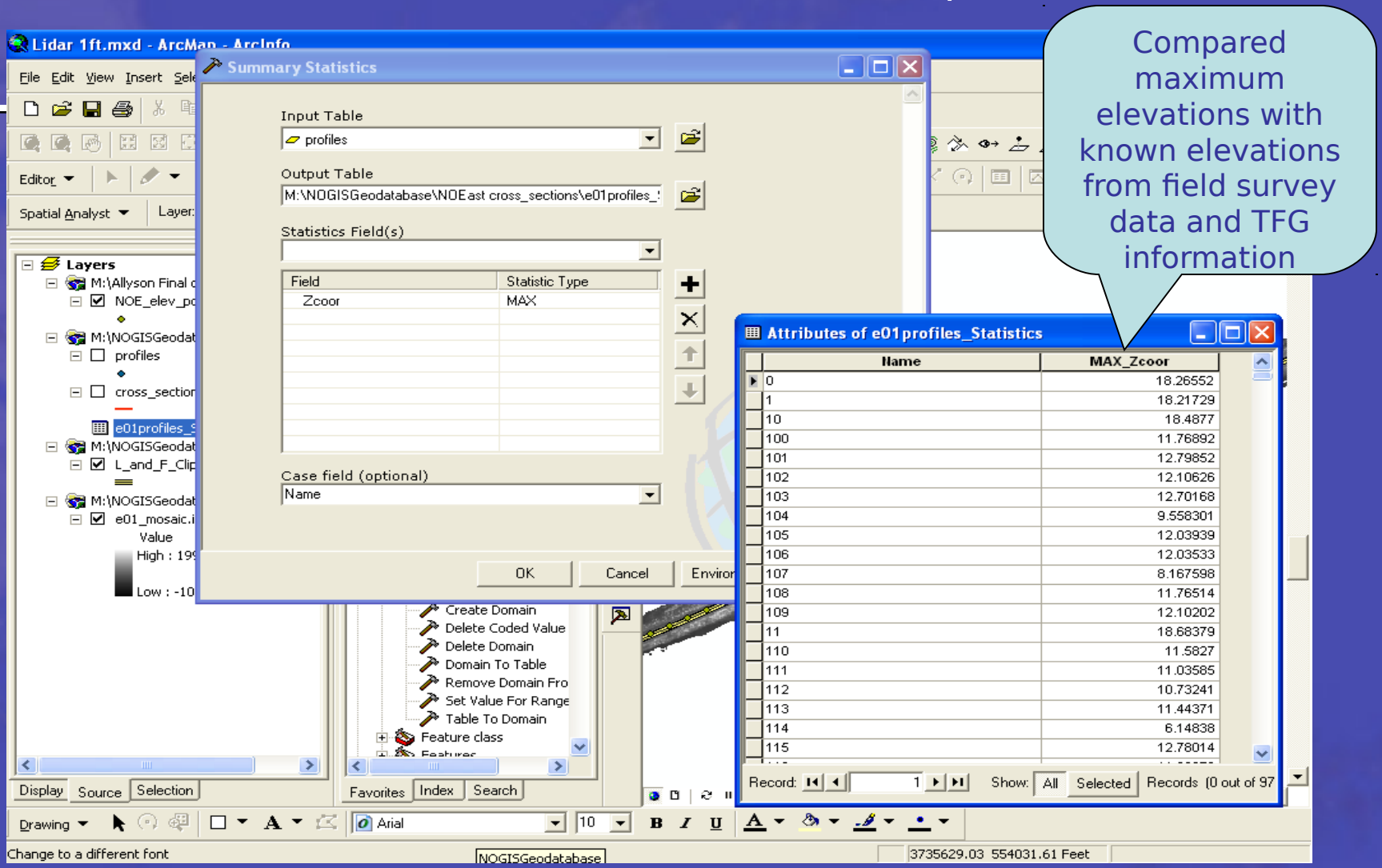
Digitized cross sections every 200 – 250 feet



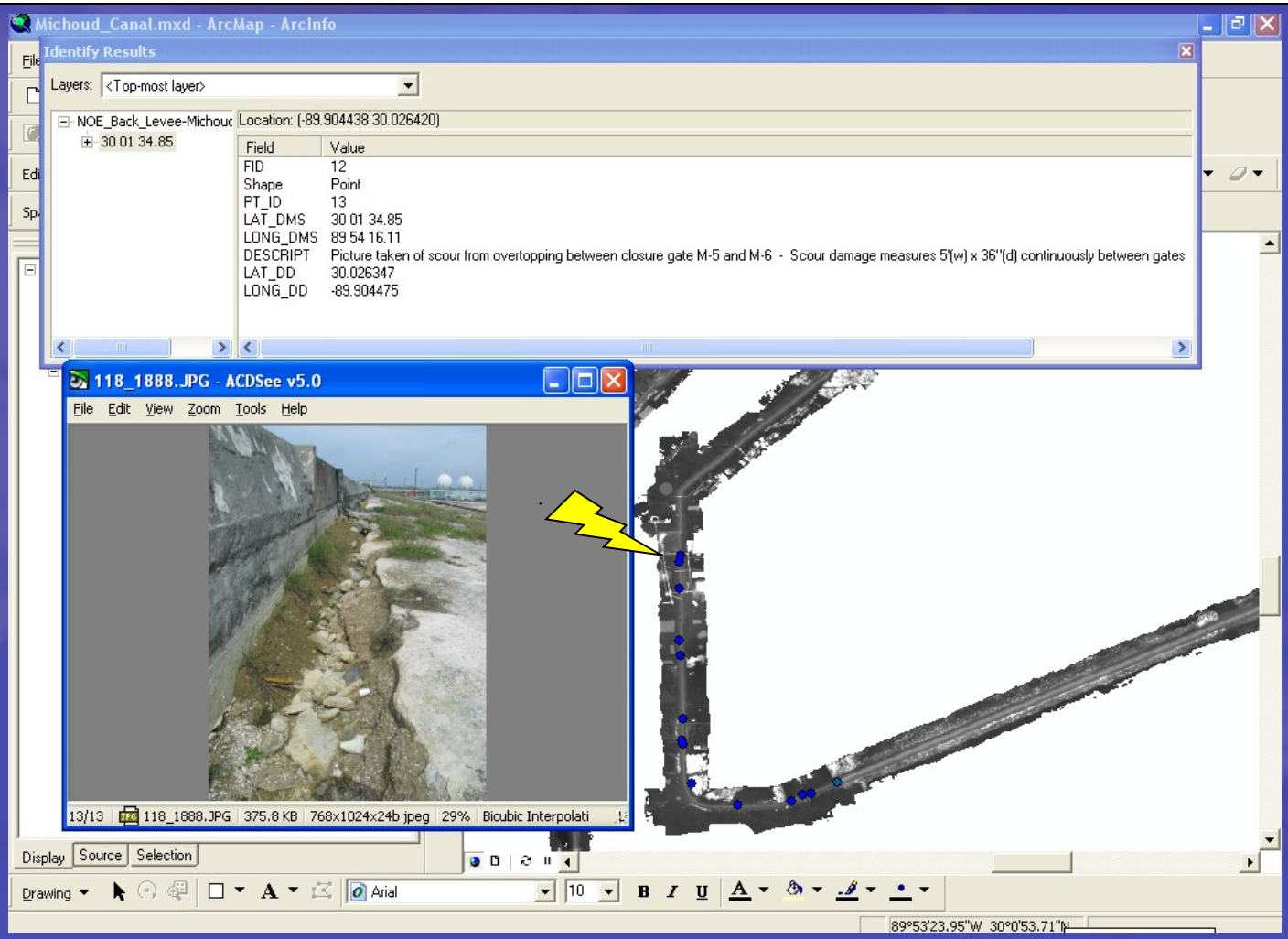
Extracted elevation values from cross sections using Easy Profiler ArcGIS extension. Plotted graph of the levee profile.



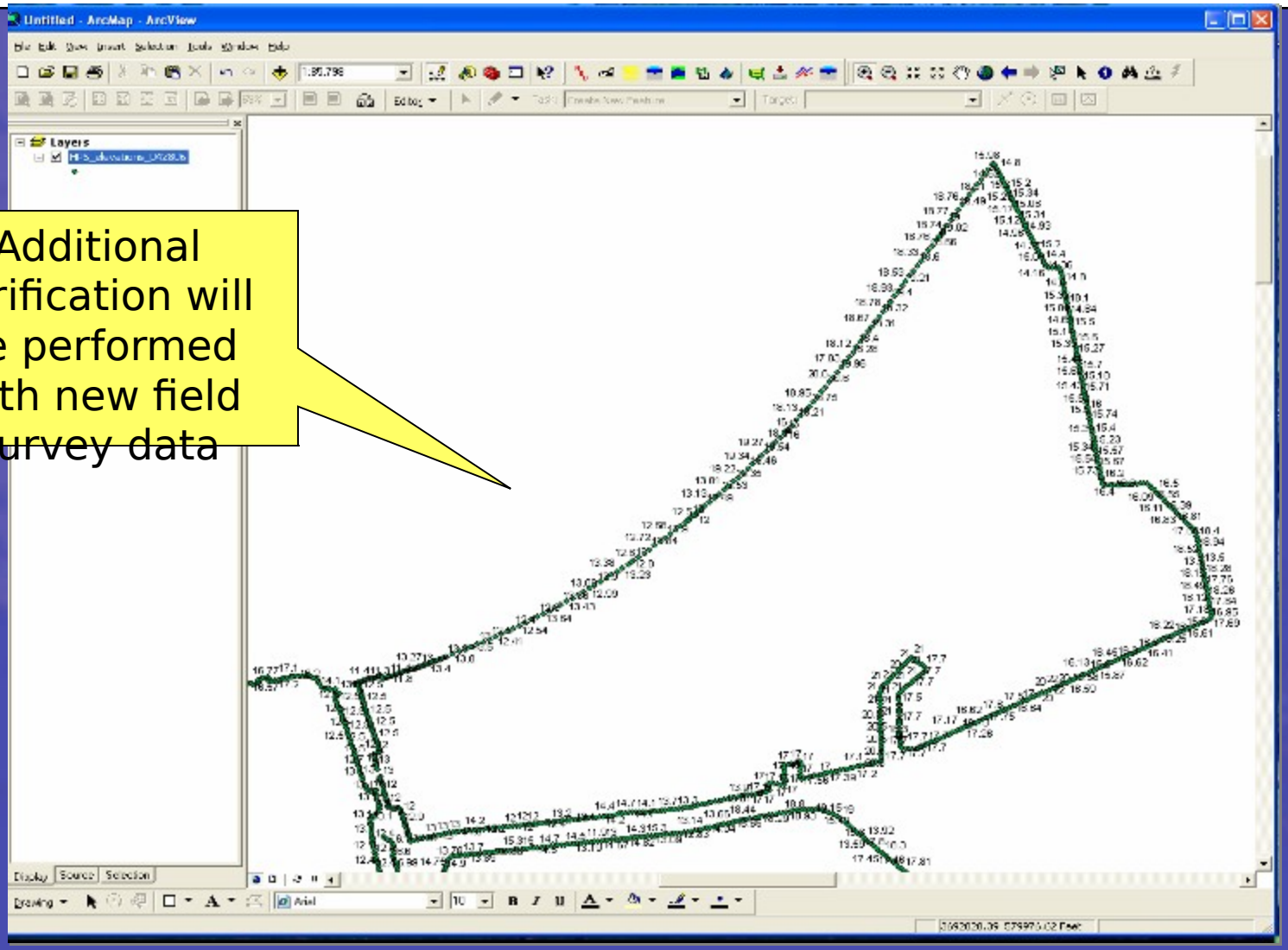
Used ArcGIS statistics function to determine the maximum elevation for each cross section (profile)



Verification was performed using pictures and notes from site visits, specifically for transition areas, drainage structures, gate closures, pump stations, and wall sections.



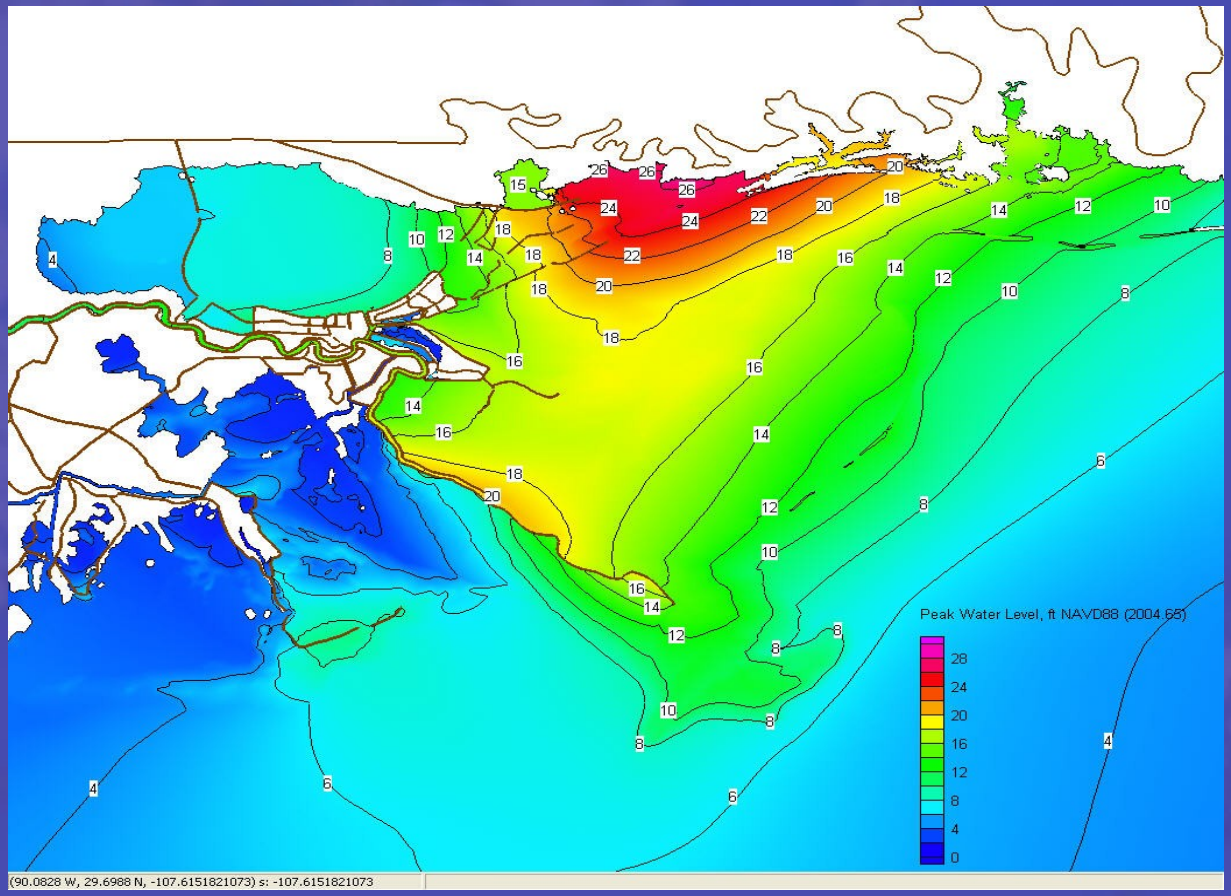
Resulting Top of Levee/Floodwall Elevation layer (preliminary)



Additional verification will be performed with new field survey data

Storm and Surge Modeling

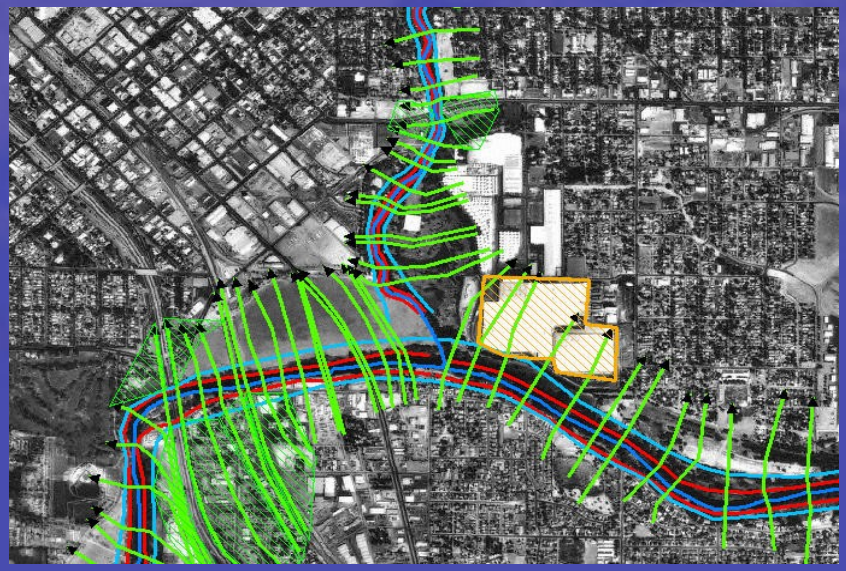
Results of ADCIRC runs are imported to GIS to create contours of peak water levels

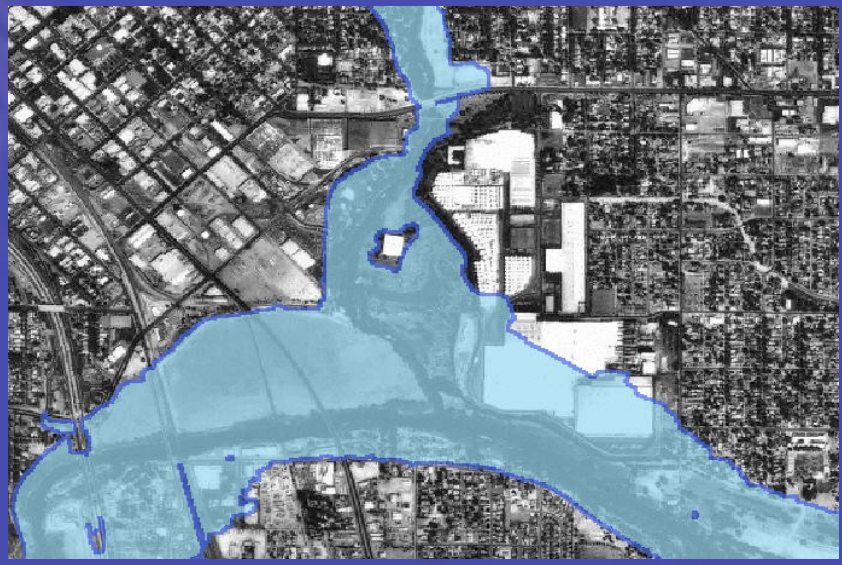


Interior Drainage

HEC-GeoRAS ArcGIS Extension

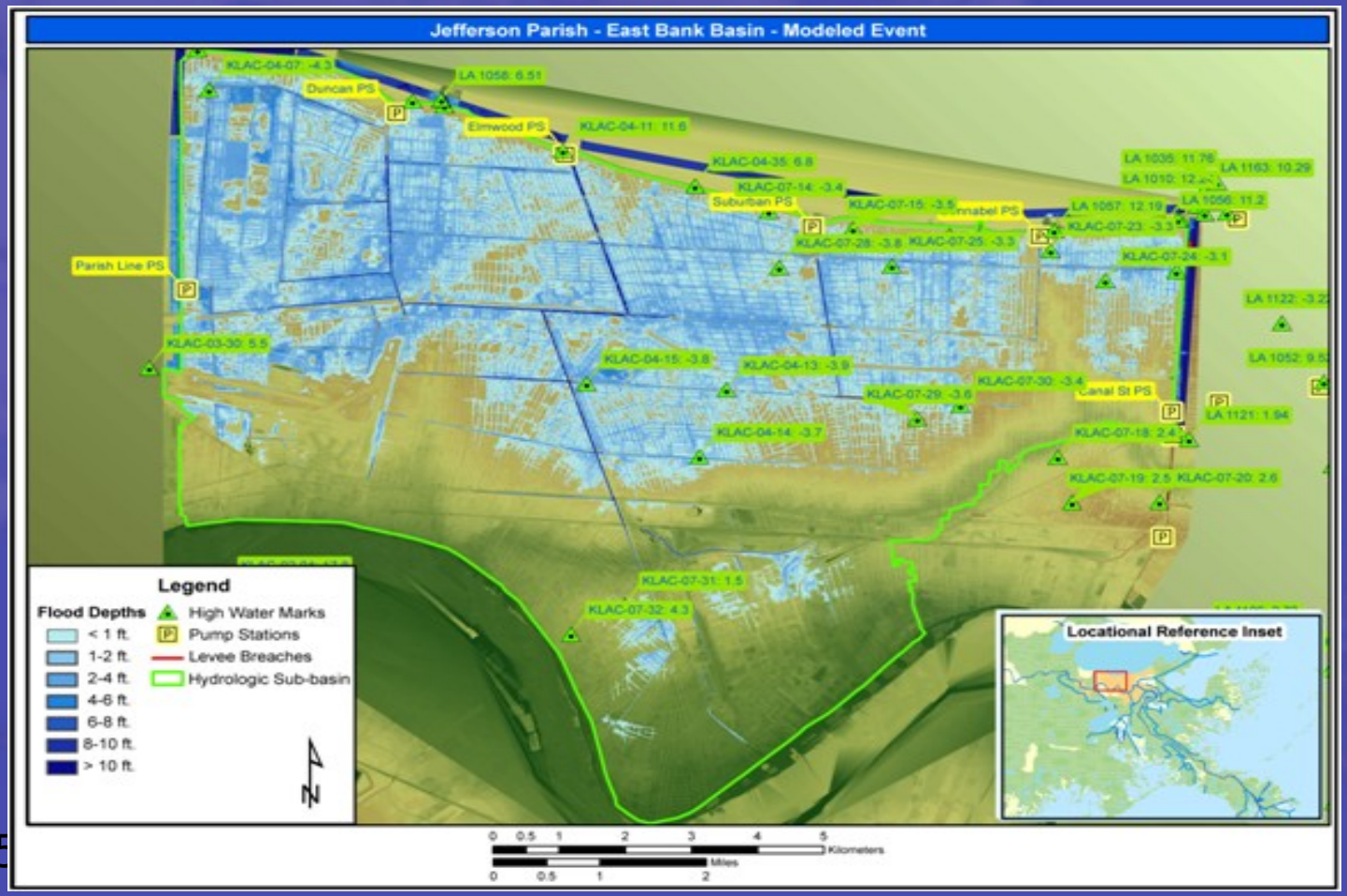
- Pre-processor for generating geometric data for import into HEC-RAS
- Post-processor for mapping and displaying results from HEC-RAS simulations



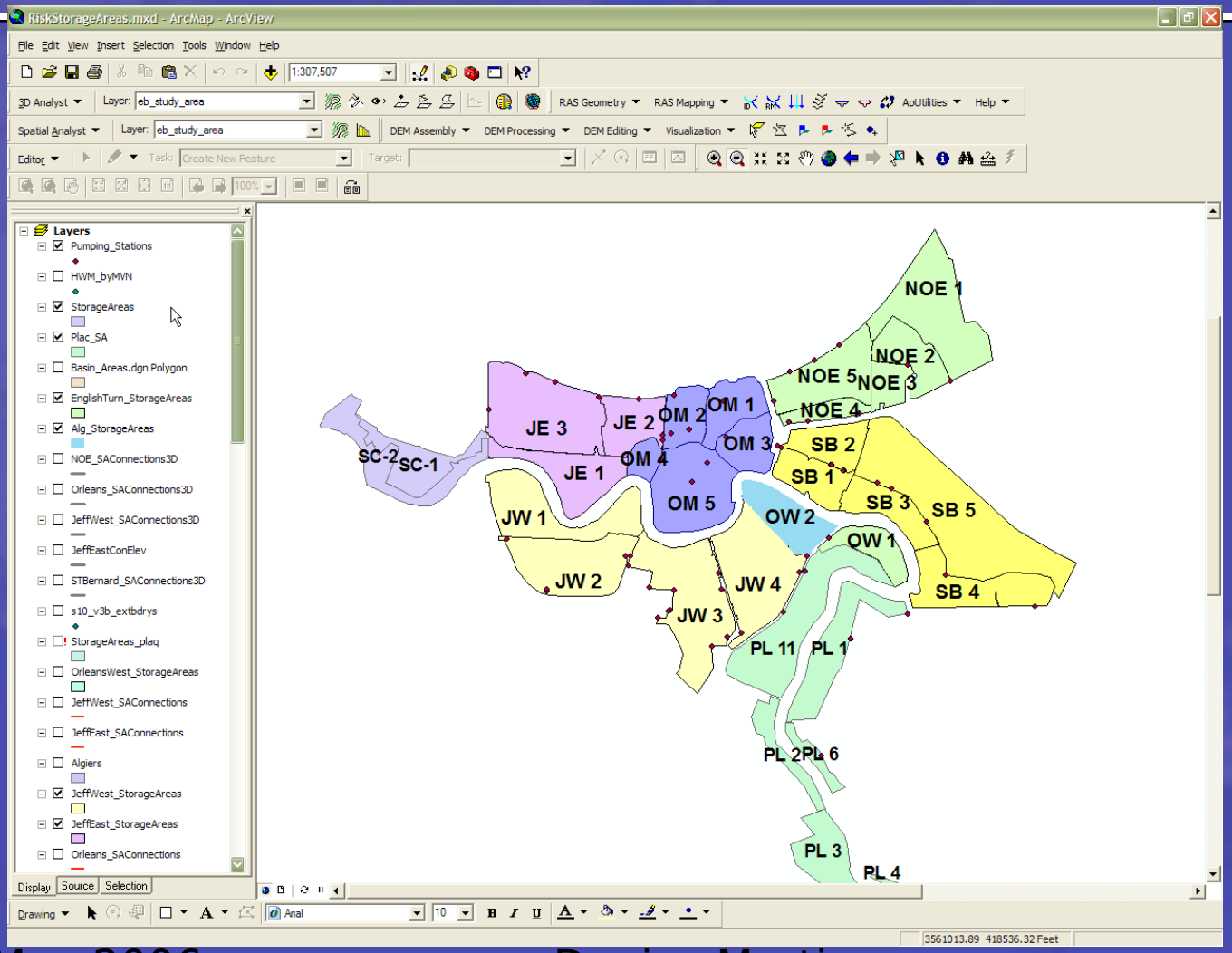


Floodplain Mapping

- Depths and Floodplain Boundary

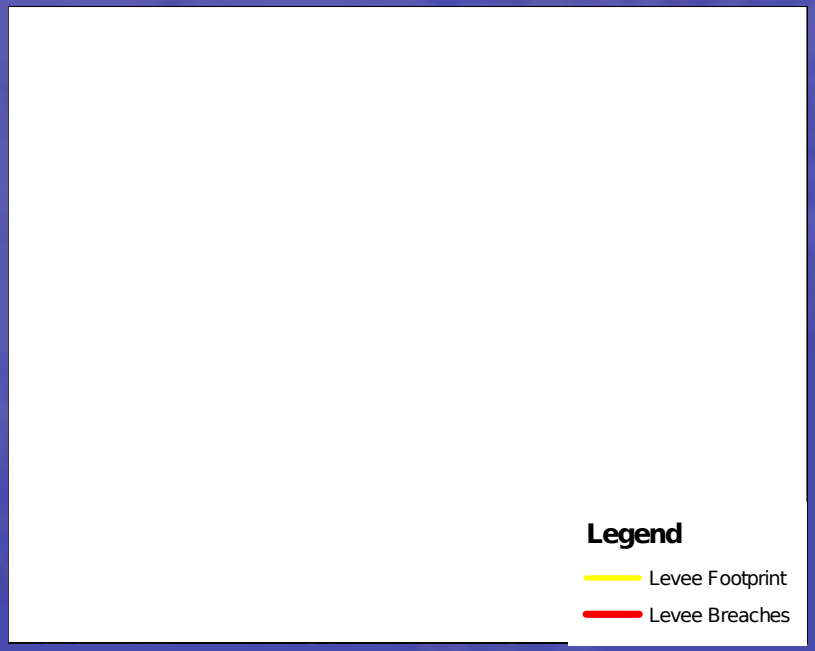


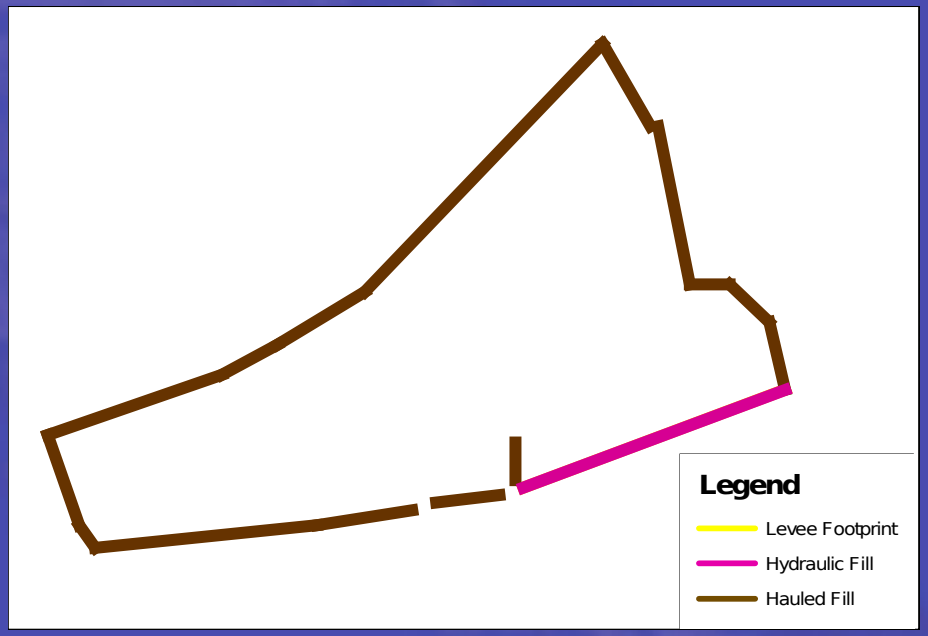
ArcGIS Developed Risk Subbasins

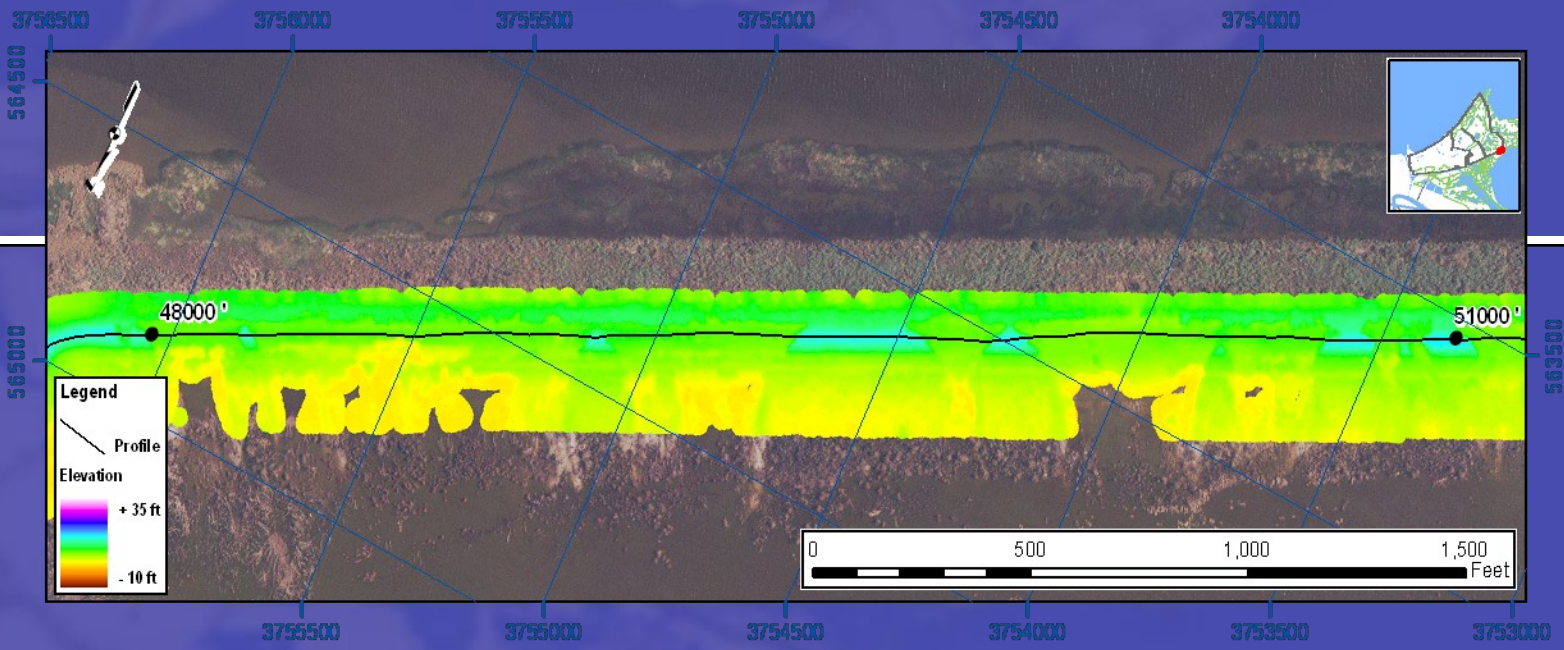


Levee Erosion

GIS was used to evaluate areas of levee erosion.






3756500
3756000
3755500
3755000
3754500
3754000
564500
565000
563500
48000 '
51000 '
Legend
Profile
Elevation
+ 35 ft
- 10 ft
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1,500
Feet
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3753500
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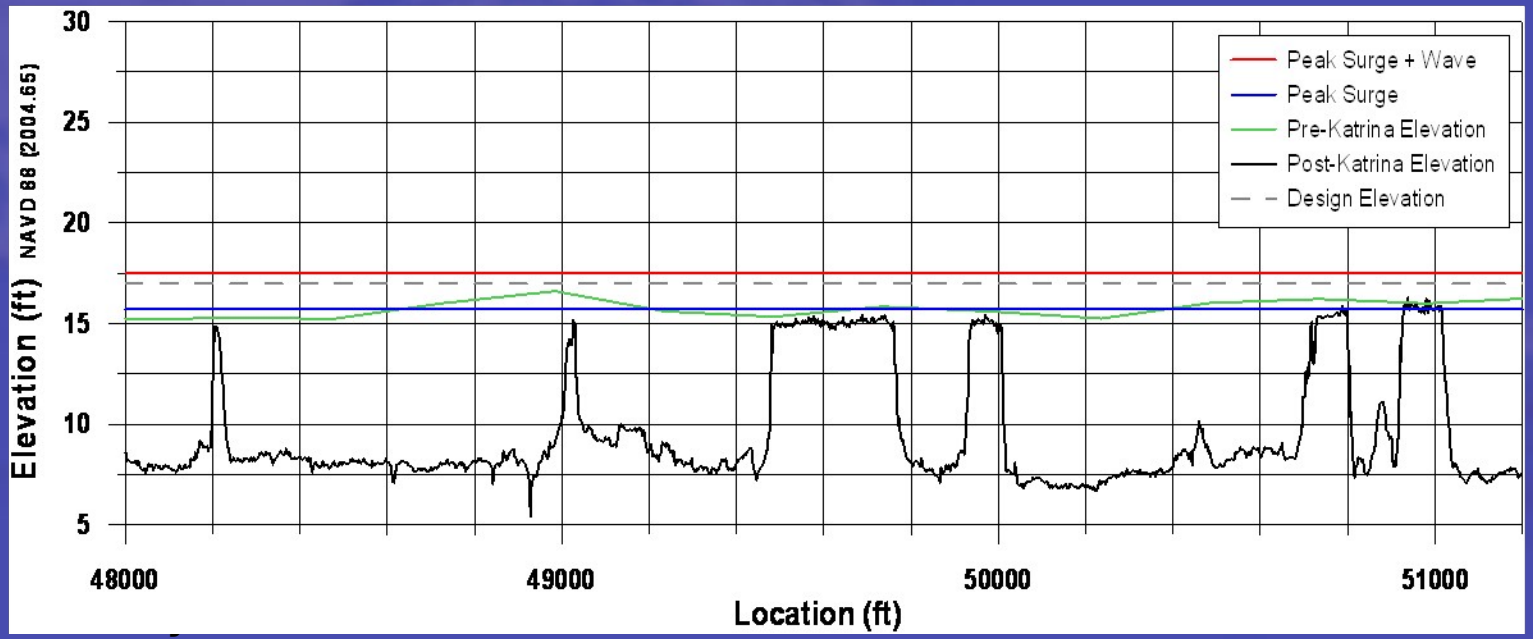
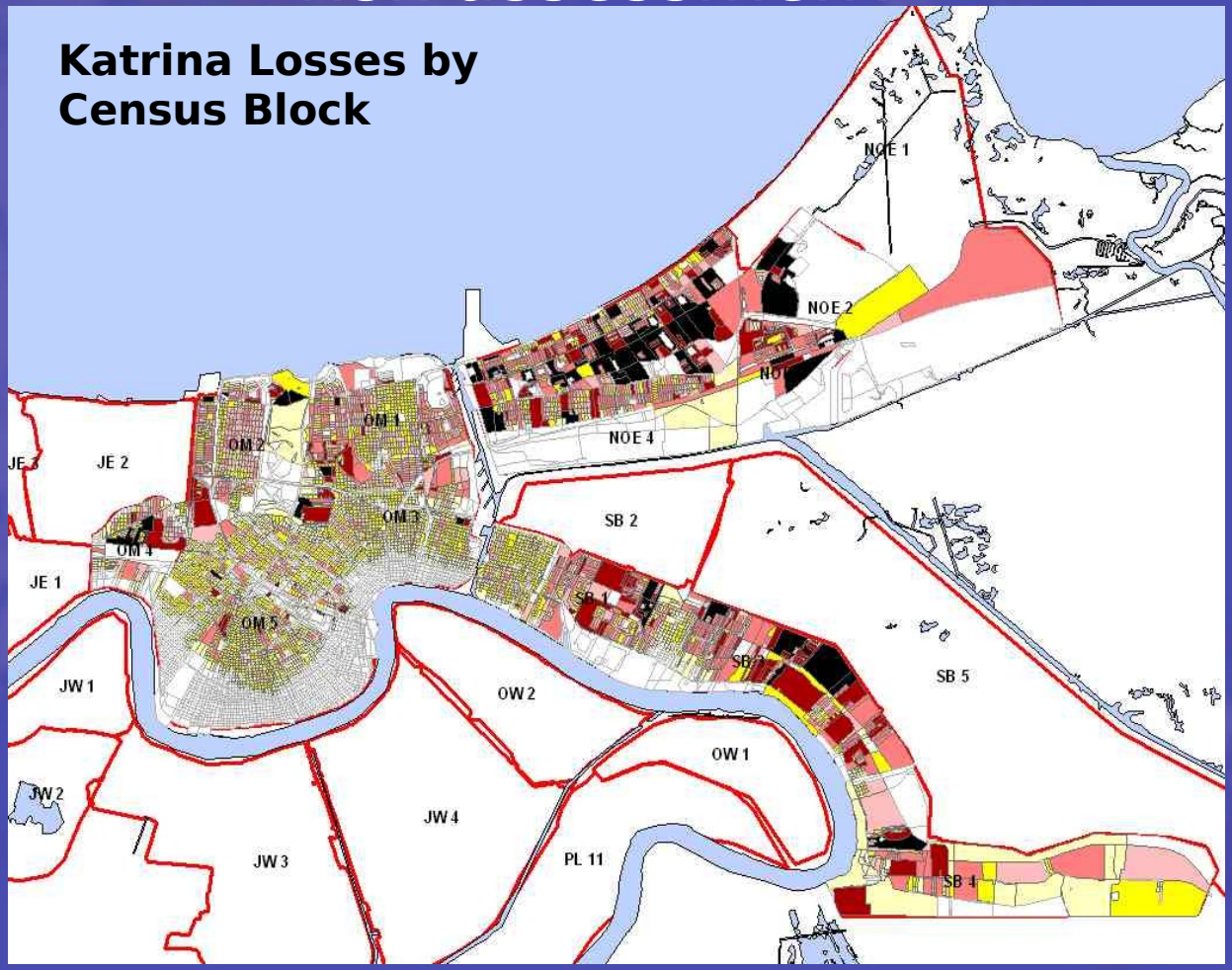
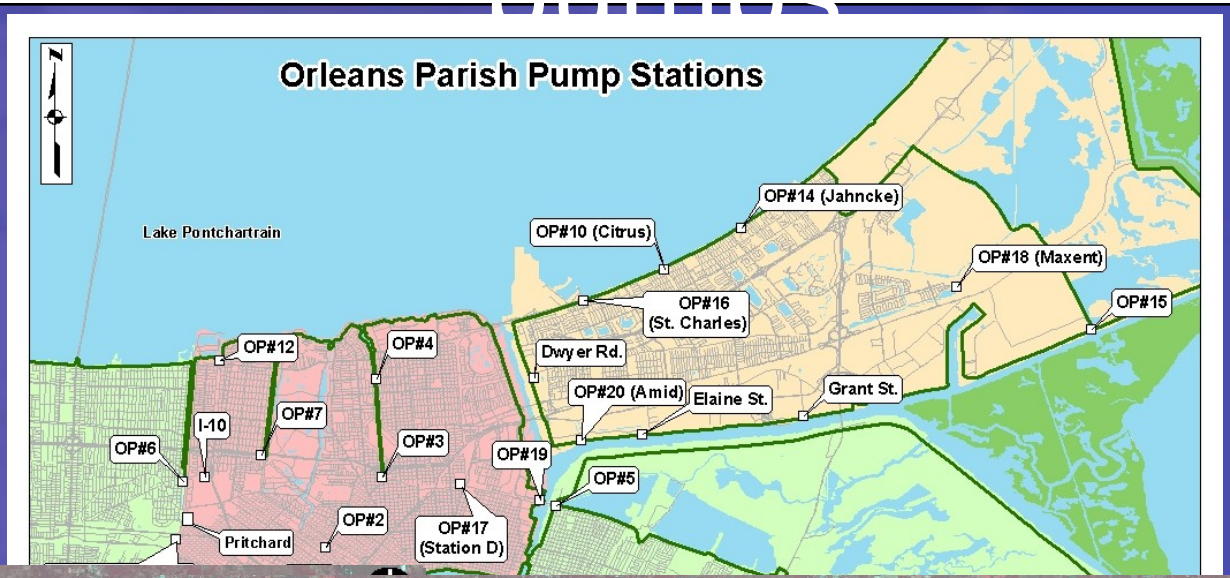
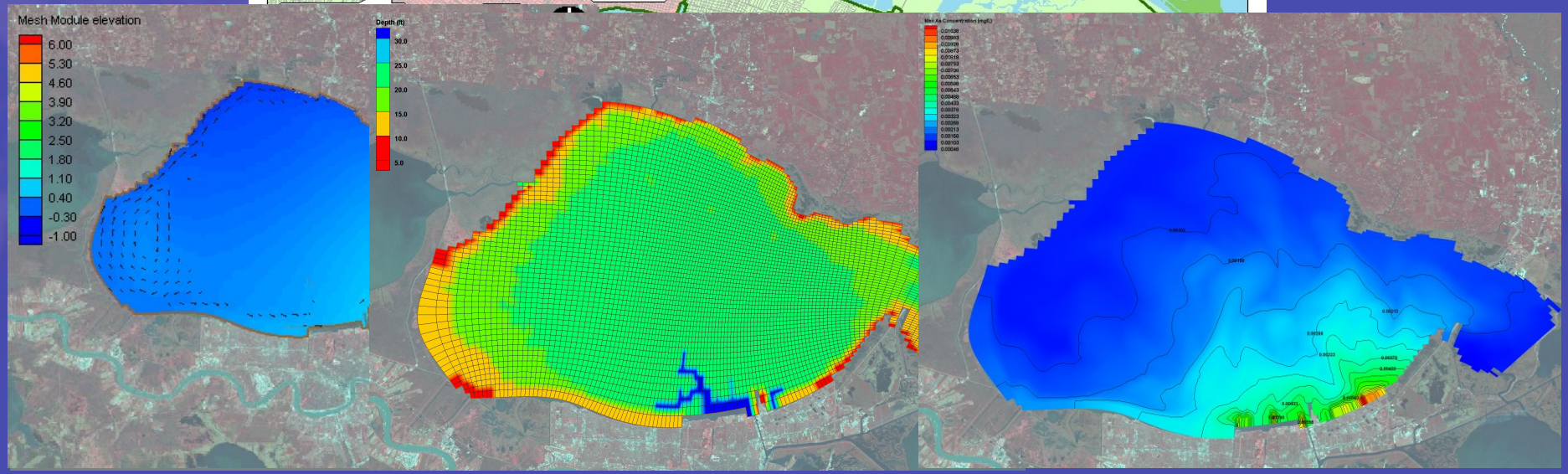

30
25
20
15
10
5
Elevation (ft) NAVD 88 (2004.65)
48000
49000
50000
51000
Location (ft)
Peak Surge + Wave
Peak Surge
Pre-Katrina Elevation
Post-Katrina Elevation
Design Elevation

Assessment of losses resulting from hurricane Katrina and estimates of direct economic losses and potential fatalities for risk assessment

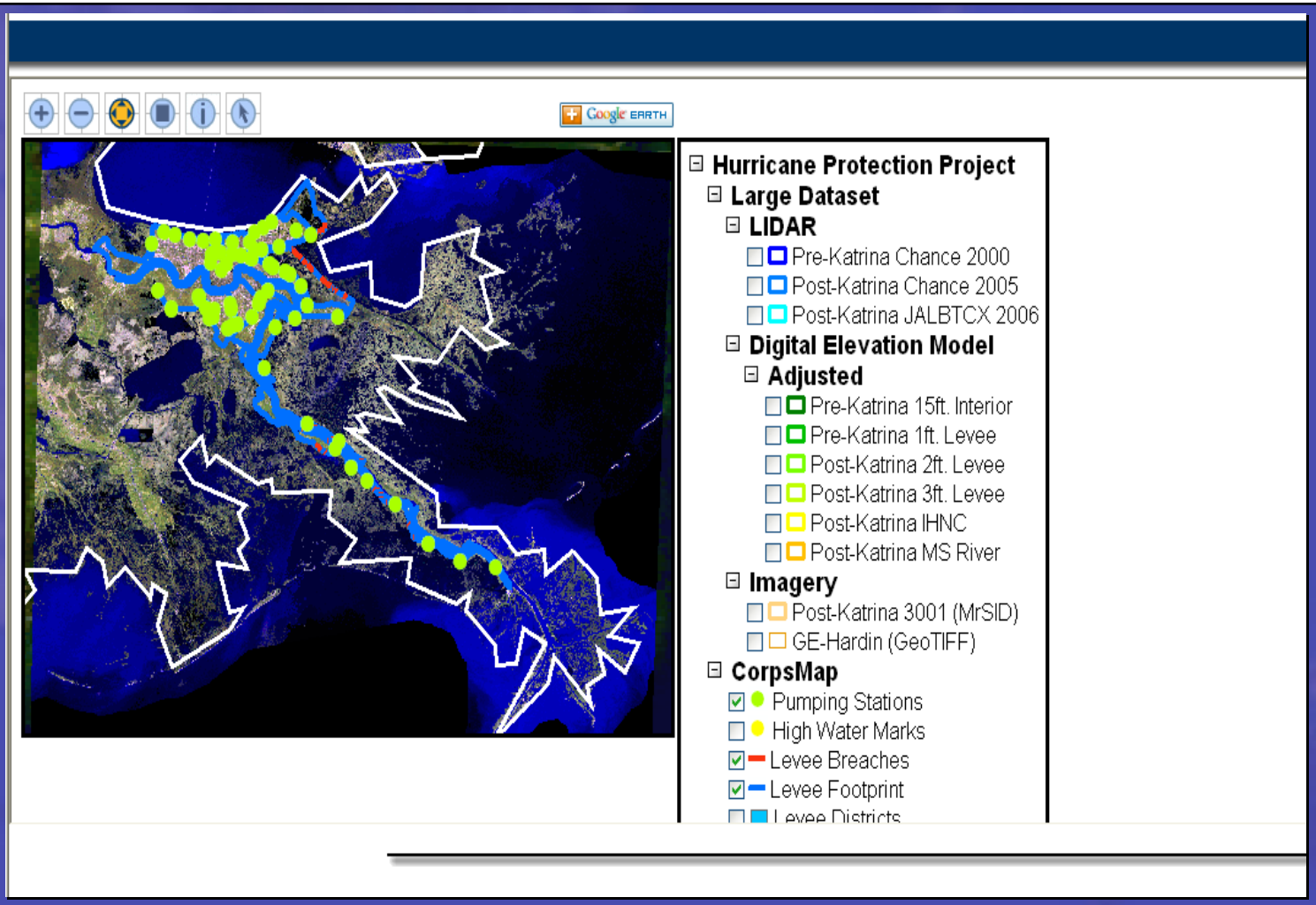


Contaminant concentrations added to sediment by water pumps





Portal for Viewing/Downloading Datasets



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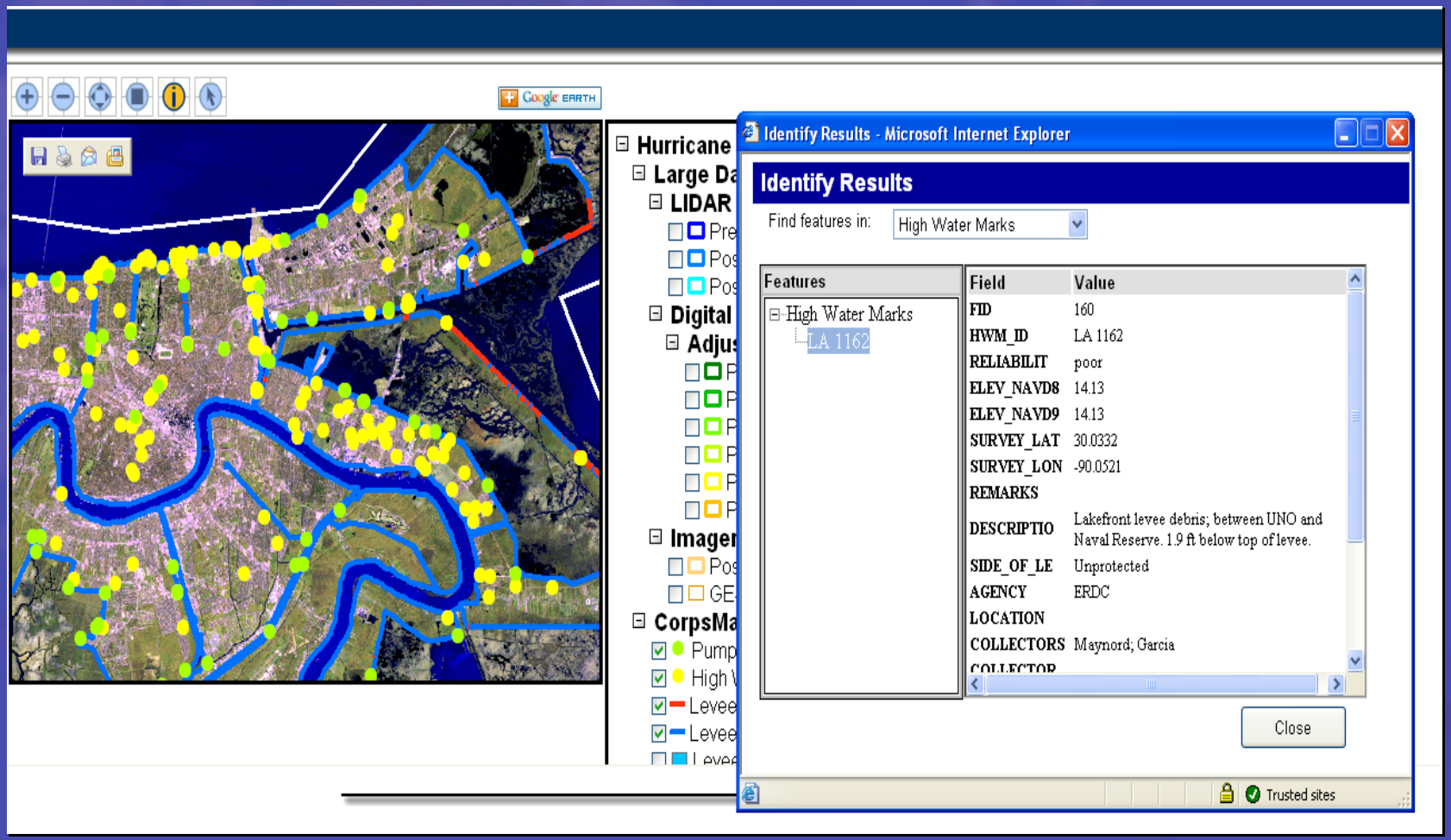

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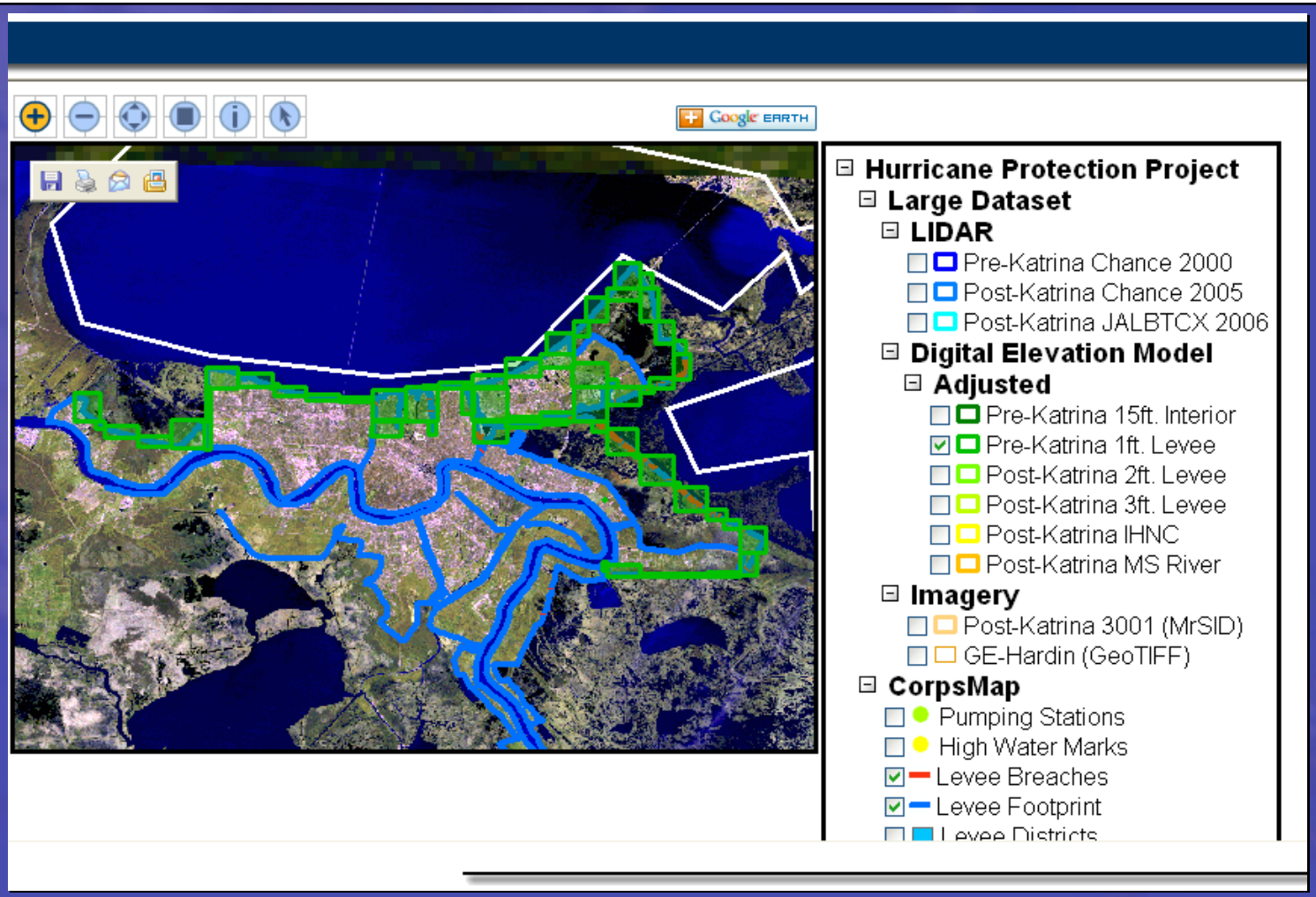

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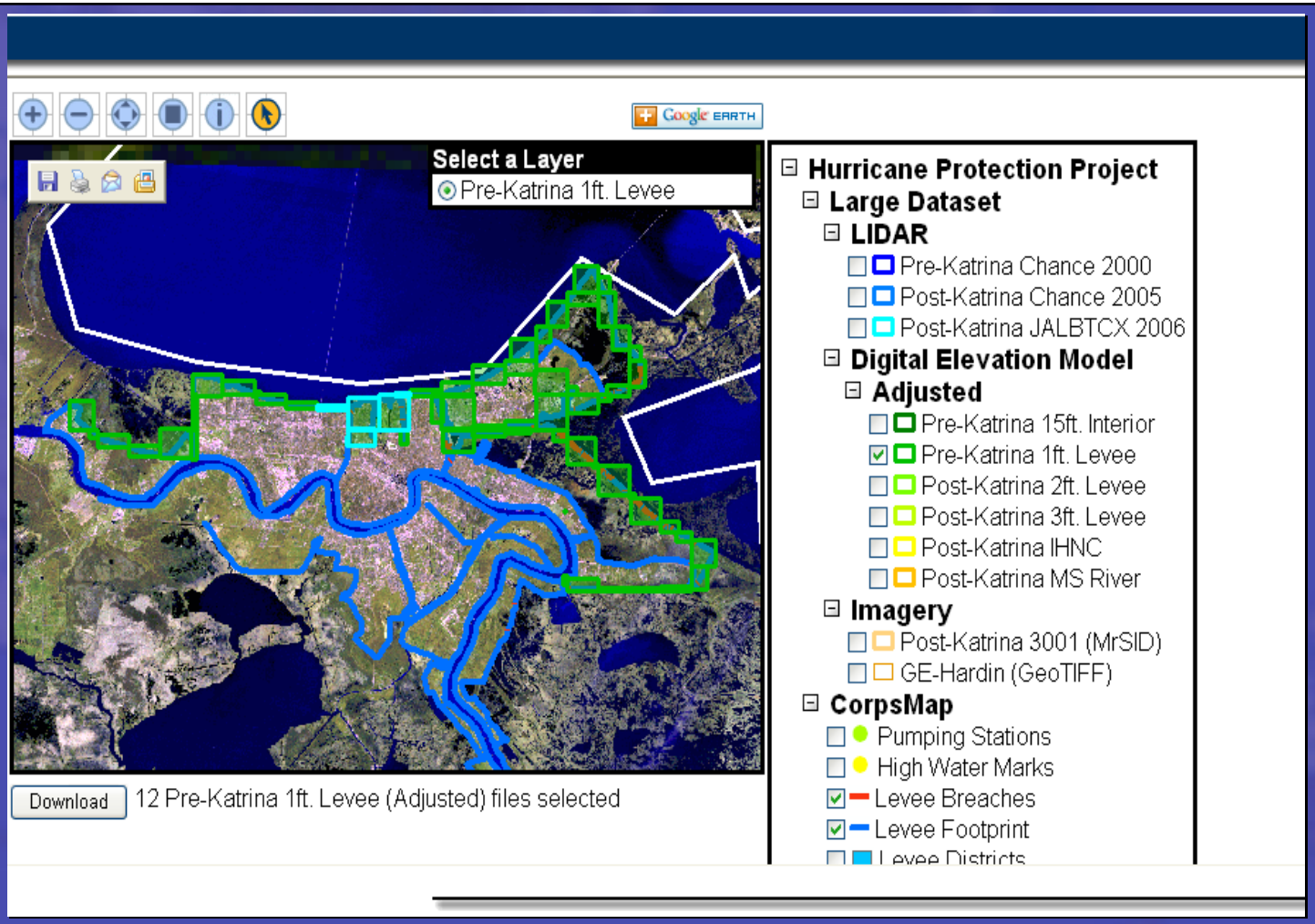

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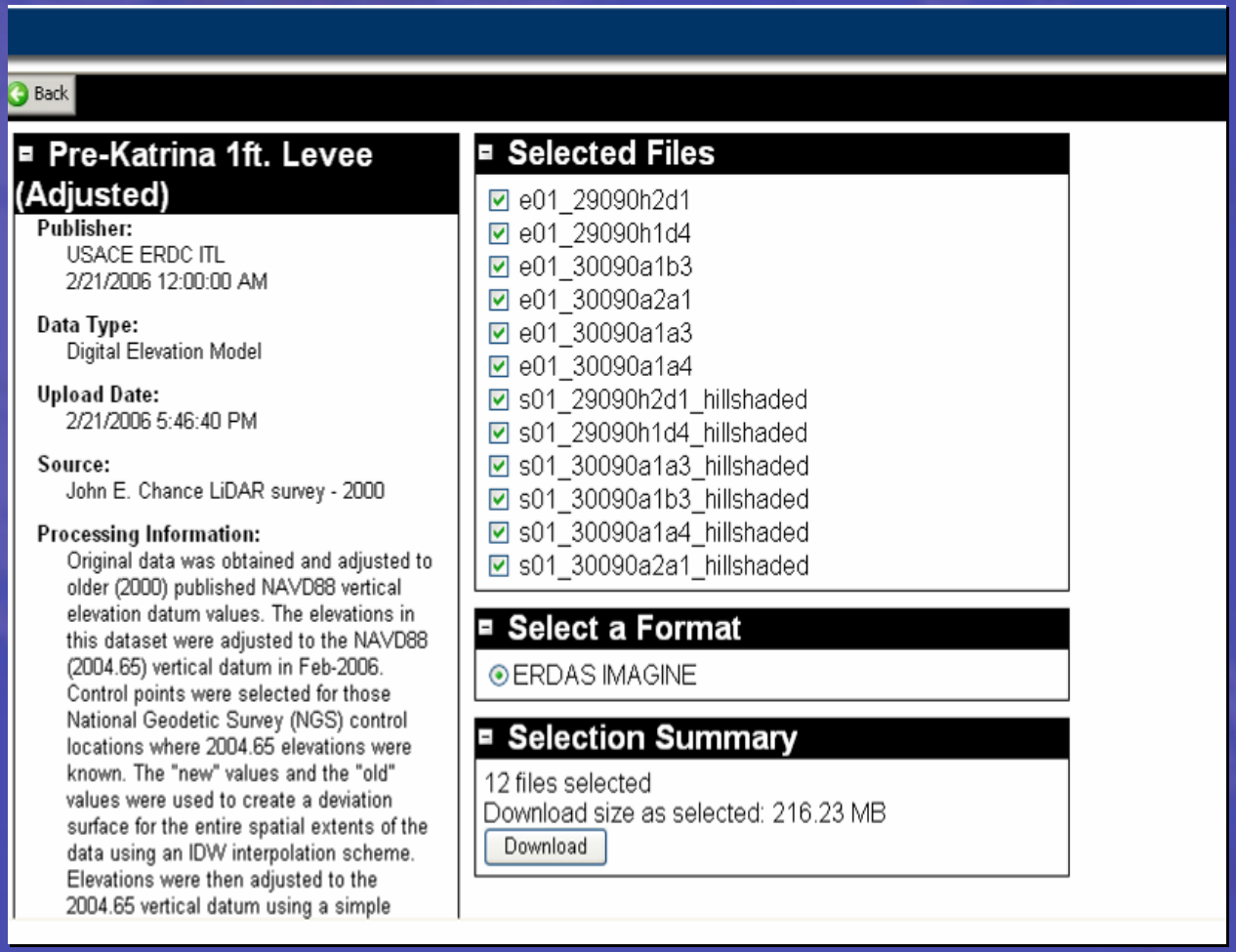
Back
Pre-Katrina 1ft. Levee (Adjusted)
Publisher:
USACE ERDC ITL
2/21/2006 12:00:00 AM
Data Type:
Digital Elevation Model
Upload Date:
2/21/2006 5:46:40 PM
Source:
John E. Chance LiDAR survey - 2000
Processing Information:
Original data was obtained and adjusted to older (2000) published NAVD88 vertical elevation datum values. The elevations in this dataset were adjusted to the NAVD88 (2004.65) vertical datum in Feb-2006. Control points were selected for those National Geodetic Survey (NGS) control locations where 2004.65 elevations were known. The "new" values and the "old" values were used to create a deviation surface for the entire spatial extents of the data using an IDW interpolation scheme. Elevations were then adjusted to the 2004.65 vertical datum using a simple
Selected Files
e01_29090h2d1
e01_29090h1d4
e01_30090a1b3
e01_30090a2a1
e01_30090a1a3
e01_30090a1a4
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s01_30090a1b3_hillshaded
s01_30090a1a4_hillshaded
s01_30090a2a1_hillshaded
Select a Format
ERDAS IMAGINE
Selection Summary
12 files selected
Download size as selected: 216.23 MB
Download

Questions